

Amendment to the Claims:

Please delete all prior listings of the claims and substitute therefor the listing of the claims as provided below:

Claims 1-10 (Cancelled).

11. (Currently amended) An assembled graft implant suitable for implantation into a patient comprising any one or combinations machined segments of allograft bone materials, autograft materials, xenograft materials, synthetic materials, metallic materials assembled into an assembled implant which is assembled into a single graft by use of reinforcing material to hold the constituent pieces of graft materials machined segments together, wherein said any one or combinations machined segments of allograft bone materials, autograft materials, xenograft materials, synthetic materials, metallic materials are pretreated by a process comprising cleaning, perfusion and passivation process which comprises cyclic exposure of said implant to cyclic increases and decreases in pressure in the presence of a cleaning solution increased and decreased positive or negative pressures, or both, wherein a cleaning solution used during the cleaning step is selected from the group consisting of: sterile water, Triton X-100, TNBP, 3% hydrogen peroxide, a water-miscible alcohol, saline solution, povidone iodine, ascorbic acid solution, aromatic or aliphatic hydrocarbons, ethers, ketones, amines, urea, guanidine hydrochloride, esters, glycoproteins, proteins, saccharides, enzymes, gaseous acids, peroxides, and mixtures thereof.

12. (Currently amended) The graft implant according to claim 11 wherein the assembled implant is pretreated or treated after assembly to incorporate a biologically active or inert materials material selected from the group consisting of a bone morphogenic protein (BMP), an antibiotic, a growth factor, a nucleic acid and a peptide.

13. (Currently amended) An assembled implant suitable for implantation in humans comprising segments of allograft cortical bone, allograft cancellous bone, allograft

cortical-cancellous bone, or ~~combinations a combination~~ thereof pinned to each other by means of pins machined from cortical bone pins, wherein, prior to assembly or after assembly, ~~the graft materials are a segment of bone or a bone pin is~~ soaked, infused, or impregnated, ~~coated or otherwise treated with bone morphogenetic proteins (BMPs), antibiotics, growth factors, nucleic acids, peptides, or combinations thereof a material selected from the group consisting of a bone morphogenic protein (BMP), an antibiotic, a growth factor, a nucleic acid, a peptide, and a combination thereof.~~

14-29 (Cancelled)

30. (Currently amended) An assembled graft implant comprising two or more individual segments fastened together with a pin machined from cortical bone, said implant comprising at least one demineralized bone segment of allograft bone and at least one mineralized bone segment of allograft cortical bone, each segment having a hole drilled therein for receiving and frictionally engaging said pin.

31. (original) The assembled graft implant of claim 30, wherein said at least one demineralized bone segment comprises a region of mineralized bone.

32. (original) The assembled graft implant of claim 30, wherein said demineralized or mineralized segments are made from cortical bone, cancellous bone or both.

33. (Currently amended) An assembled graft implant suitable for use in humans comprising two or more individual segments of allograft cortical bone fastened together, said implant further comprising a pin holding said segments together at least one synthetic segment and at least one demineralized bone segment.

34. (Cancelled)

35. (Currently amended) The assembled graft implant of claim 33, wherein said

~~synthetic segment is comprised pin is made from a material selected from the group consisting of stainless steel, titanium, cobalt chromium-molybdenum alloy, nylon, polycarbonate, polypropylene, polyacetal, polyethylene oxide and its copolymers, polyvinylpyrrolidone, polyacrylates, polyesters, polysulfone, polylactide, poly(L-lactide) (PLLA), poly(D,L-lactide) (PLA), poly(glycolide) (PGA), poly(L-lactide-co-D,L-Lactide) (PLLA/PLA), poly(L-lactide-co-glycolide) (PLA/PGA), poly(glycolide-co-trimethylene carbonate) (PGA/PTMC), polydioxanone (PDS), polycaprolactone (PCL), polyhydroxybutyrate (PHBT), poly(phosphazenes), poly(D,L-lactide-co-caprolactone) (PLA/PCL), poly(glycolide-co-caprolactone) (PGA/PCL), poly(phosphase ester), polyanhydrides, polyvinyl alcohol, hydrophilic polyurethanes, and a combination of one or more bioabsorbable polymers.~~

36-38. (Cancelled)

39. (Currently amended) The assembled graft implant of claim 11 further comprising ~~two or more individual segments fastened together, wherein said assembled graft comprises at least one segment comprised of demineralized bone, mineralized bone, demineralized bone having a mineralized region, or a synthetic material, and at least one other segment fastened thereto that is comprised of demineralized bone, mineralized bone, demineralized bone having a mineralized region, or a synthetic material.~~

40-55 (Cancelled)

56. (Currently amended) A kit for assembling an implantable bone product comprising assemblable parts machined from autograft, allograft, xenograft bone, said parts having a through hole therein that is sized for receiving a pin machined from cortical bone, said pin interconnecting said assembleable parts and capable of holding them in juxtaposition to one another and synthetic segments for assembling mixed composition implants from smaller pieces of graft materials to form a larger graft implant product which may be formed in the course of a surgical procedure to precisely meet the needs of a

~~given patient or procedure, and comprising at least one mixed composition segment among said assemblable parts.~~

57-59. (cancelled)

60. (Currently amended) An assembled implantable bone graft suitable for implantation in humans comprising segments of allograft cortical bone held in juxtaposition by machined pins of cortical bone, cancellous bone, cortical cancellous bone, or combinations thereof pinned to each other by means of cortical bone pins, wherein, prior to assembly ~~or after assembly~~, the bone pins are pre-shrunk by freeze drying ~~graft materials are soaked, infused, impregnated, coated or otherwise treated with bone morphogenetic proteins (BMPs), antibiotics, growth factors, nucleic acids, peptides, sodium hyaluronate, hyaluronic acid, polysulfated glycosaminoglycans, or combinations thereof, and wherein, at least one of said segments is a mixed composition segment or demineralized bone.~~

61. (Currently amended) An assembled implantable bone graft suitable for use in humans comprising a first bone machined segment of allograft bone pinned to a second bone machined segment of allograft bone, and comprising a flexible tissue affixed between said first bone segment and said second bone segment, ~~wherein said first bone segment is a mixed composition segment.~~

62 -63. (Cancelled)

64. (Currently amended) The bone graft of claim 61 63, wherein said first graft machined segment and said ~~at least one other graft~~ second machined segment have respective through holes that are aligned for receiving said pin ~~are joined physically by means of at least one pin, rod, bar, post or other linear connector passing through said at least one hole in said first graft segment which is arranged to align with said at least one hole of said other graft segment.~~

65-66. (Cancelled)

67. (Currently amended) An assembled graft implant for implantation into a human comprising any one or combinations a combination of machined segments of allograft bone materials, autograft materials, xenograft materials, synthetic materials, and metallic materials assembled into an said assembled graft implant which is assembled into a single graft by use of reinforcing material a pin, said pin inserted into drilled through holes in each of said machined segments to hold the constituent pieces of graft materials machined segments together, and comprising at least one mixed composition segment.

68. (Currently amended) The graft implant of claim 67 wherein said reinforcing material pin is machined from allograft comprises cortical bone.

69. (Currently amended) The graft implant of claim 67 wherein the assembled implant is pre-treated or treated after assembly to incorporate a biologically active or inert materials material selected from the group consisting of a bone morphogenic protein (BMP), an antibiotic, a growth factor, a nucleic acid and a peptide.

70. (Cancelled)

71. (Currently amended) The graft implant of claim 67 68 comprising composed of a two segments of cortical bone implant reinforced by insertion therein of having at least one cortical bone pins inserted in each of said segments.

72. (original) The implant of claim 67, having a superior vertebra engaging surface and an inferior vertebrae engaging surface, said surfaces having ridges or teeth machined therein to assist in retention of the implant when placed between the vertebrae comprising an assembled implant comprising different segments of cortical bone, cancellous bone or both.

73. (Cancelled)

74. (Currently amended) The implant of claim 67 further comprising an assembled implant comprising different segments of cortical bone, cancellous bone, demineralized cortical or cancellous bone, or synthetic material, or combinations thereof.

75. (original) The implant of claim 71 wherein insertion of reinforcing pins provides an implant with multiple load-bearing pillars.

76. (original) The implant of claim 75 wherein said pins protrude from the surface of the implant to engage with inferior, superior or both surfaces of bone between which the implant is inserted.

77. (Currently amended) The implant of claim 67 which is sized for implantation between a spinal implant adjacent spinal vertebrae.

78. (Currently amended) The implant according to claim 67 further comprising a cancellous portion of bone implant that has been compression molded, and then affixed to other portions of cortical ~~or cancellous~~ bone.

79. (original) A bone implant comprising:

- a. two or more bone segments,
- b. at least one biocompatible connector,
- c. wherein said at least one biocompatible connector fastens together said two or more bone segments to form an assembled bone implant, said at least one biocompatible connector does not comprise an adhesive.

80. (original) The bone implant of claim 79, wherein at least one of said two or more bone segments is a mixed composition segment.

81-101. (Cancelled)